

THE FIRST RECORD OF STENOPSOCIDAE (PSOCOPTERA) FROM
NEW GUINEA WITH DESCRIPTIONS OF NEW SPECIES

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Synopsis

Seven species of the family Stenopsocidae are recorded from Papua-New Guinea-West Irian area. These include five new species of *Taeniostigma* Enderlein as well as *T. perkinsi* Banks and *Stenopsocus albipileus* Smithers, both previously known from north-eastern Australia.

INTRODUCTION

Seven species of the family Stenopsocidae are here recorded from Papua New Guinea and West Irian for the first time; six species belong to the genus *Taeniostigma* Enderlein and one to *Stenopsocus* Hagen.

Taeniostigma Enderlein was erected for *Psocus elongatus* Hagen from Ceylon and has since been recorded from several other localities in Indo-Malaya. Subsequently several additional species have been described from the Oriental and Australian Regions, but none from the Papua-New Guinea-West Irian area. Five new species are described below and new records given for *T. perkinsi* Banks, a species previously known only from Australia.

Stenopsocus albipileus Smithers, for which new records are given below, was also previously known only from Australia. The genus has not been previously recorded for New Guinea.

Taeniostigma Enderlein 1901

(Type species: *Psocus elongatus* Hagen 1858)

Taeniostigma baiyerensis sp. n.

Figs 1-6

FEMALE

Coloration (in alcohol). A distinctively marked species. Top of head, except for a narrow brown triangle in front of ocellar tubercle, pale yellowish. Genae, postclypeus and area between eyes and antenna bases very dark brown. Labrum and mouth parts, including maxillary palps, very pale, almost colourless. Antennae very dark brown with only slight suggestion of paling in proximal halves of flagellar segments. Dorsum of thorax anterior to mesothoracic wing bases very dark brown; no median pale area on antedorsum; sutural areas dark; thorax otherwise pale. Legs pale, except for pale brown distal tarsal segments. Fore wings (fig. 1) with area near wing base and cell IA very pale brown, otherwise hyaline.

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Pterostigma opaque. Wing membrane faintly tinged with brown near nodulus. Veins pale brown with r , r_1 , $m + cu$ and cu_1 beyond separation from m darker. Hind wings (fig. 2) hyaline, veins brown.

Morphology. Length of body: 5.0 mm. Median epicranial suture distinct. Epicranial plates fairly flat with an occasional tiny seta. Frons with sparse, but larger, setae. Postclypeus and genae setose. Lengths of flagellar segments: f_1 : 2.16 mm; f_2 : 1.5 mm. Antennae stout and very hairy. Eyes fairly large. IO/D : 1.8; PO : 0.85. Ocellar tubercle small. Lacinia (fig. 3). Measurements of hind legs: F : 1.5 mm; T : 2.4 mm; t_1 : 0.75 mm; t_2 : 0.20 mm; rt : 3.75 : 1; ct : 28, 0. Legs long and slender, femora almost parallel-sided for most of length. Fore wing length: 7.0 mm; fore wing width: 2.4 mm. Fore wings broad, with broadly rounded apex. Vein r_1 (hind margin of pterostigma) almost straight, with only slight anterior curvature near wing margin so that the pterostigma is very narrow. Free section of m between $rs + m$ confluence and $m + cu_{1a}$ confluence 1.45 times as long as $rs + m$. Areola postica tall with narrow apex. Veins and margin (except from wing base to nodulus) setose. Setae on cu_2 up to 0.117 mm. Hind wing length: 4.6 mm; hind wing width: 1.4 mm. Veins setose except for $r + m$, r and rs basad of fusion with m . Vein r_{2+3} in the right wing of the type specimen has an adventitious, short, branch. Margin setose except anterior margin from wing base to r_1 . Epiproct simple with semicircular hind margin, setose in distal third, without papillae. Paraproct rounded, strongly setose in distal half with large, round, trichobothrial field but no papillae. Gonapophyses (fig. 4). Ventral valve on long stalk; both valves fairly broad with strong median, chitinized bar with delicate fleshy flanges; hardly tapering except close to apex. Subgenital plate (fig. 5) with rounded hind margin, setose.

MALE

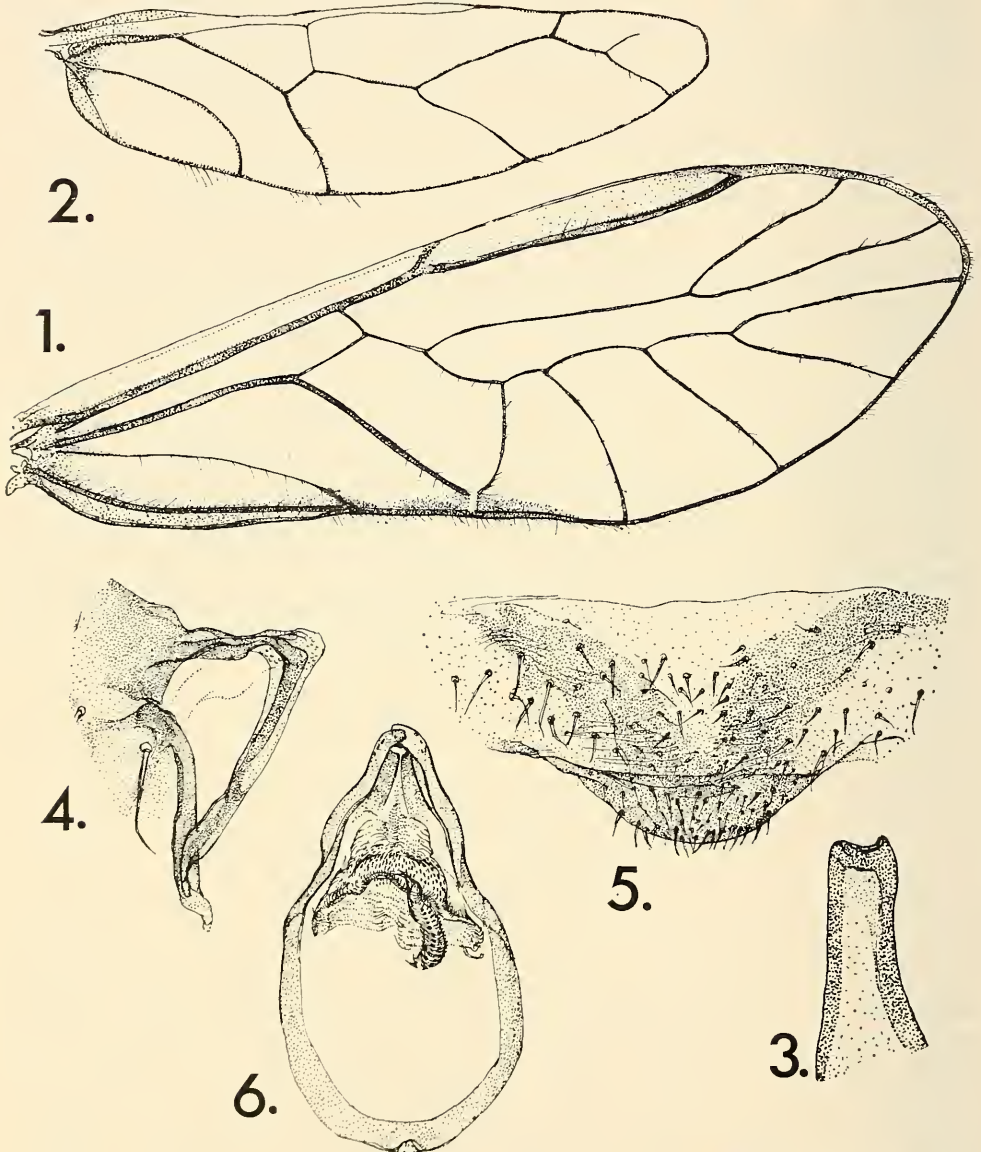
Coloration (in alcohol). As in female but brown area at base of wing and in cell Cu_2 paler.

Morphology. Length of body: 4.2 mm. Length of flagellar segments: f_1 : 1.56 mm; f_2 : 1.24 mm. Antennae stout and setose as in female. Eyes very large. IO/D : 0.84; PO : 0.84. Measurements of hind leg: F : 1.36 mm; T : 2.16 mm; t_1 : 0.76 mm; t_2 : 0.16 mm; rt : 4.8 : 1; ct : 25, 1. Fore wing length: 5.1 mm; fore wing width: 1.8 mm. Venation as in female; free section of m between $rs + m$ confluence and $m + cu_{1a}$ confluence 1.7 times as long as $rs + m$. Apex of areola postica narrow. Fore wing with all veins and margin (except nodulus to wing base) setose. Hind wing with all veins and margin (except r_1 to wing base) setose. Hind wing length: 3.6 mm; hind wing width: 1.1 mm. Epiproct simple, very lightly sclerotised, setose. Paraprocts with large, almost circular trichobothrial field, otherwise lightly sclerotised and setose; one large, exceptionally long seta arises just posterior to trichobothrial field. Hypandrium simple, setose, lightly sclerotised medially, a little more heavily sclerotised and setose laterally. Phallosome (fig. 6).

Material Examined. New Guinea: 1 ♀ (holotype), Baiyer River Sanctuary, August 28, 1970 (C. N. Smithers and I. W. B. Thornton); 1 ♀, 1 ♂, Baiyer River, NE., Western Highlands, 1150 m, October 18, 1958 (J. L. Gressitt).

Holotype in Australian Museum, Sydney (AM); allotype and paratype in Bishop Museum, Hawaii (BPBM).

Discussion. *Taeniostigma baiyerensis* and *T. phaeostigma* Smithers and Thornton are the only two species from New Guinea with the characteristic head and thoracic pattern in which the top of the head is pale and the anterior part of the pterothoracic dorsum is dark and sharply



Figs 1-6. *Taeniostigma baiyerensis* sp. n. 1. ♀, forewing. 2. ♀, hindwing. 3. ♀, lacinia. 4. ♀, gonapophyses. 5. ♀, subgenital plate. 6. ♂, phallosome.

demarcated from the posterior paler part at the level of the fore wing bases. This pattern is quite distinctive.

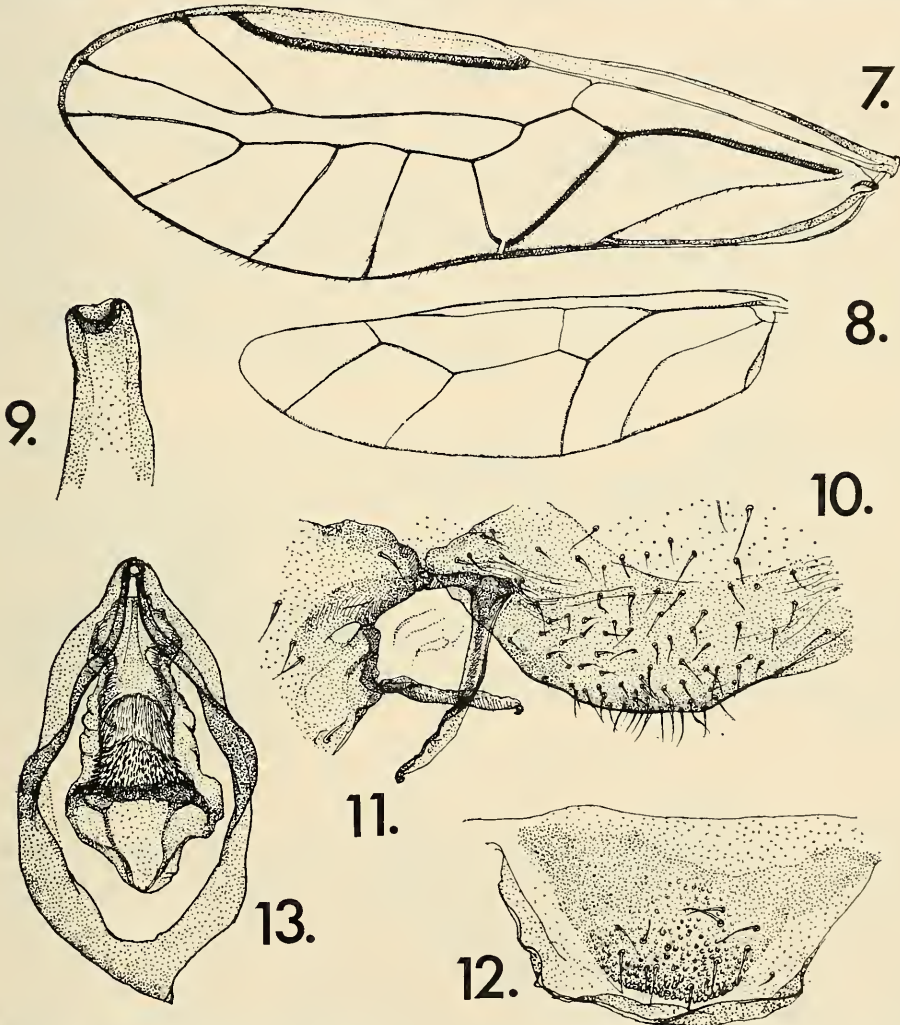
In *T. baiyerensis* the posterior part of the pterostigma is narrowly dark whereas in *T. phaeostigma* there is a strong dark band running along r_1 .

Taeniosigma nigricornis sp. n.

Figs 7-13

FEMALE

Coloration (in alcohol). Head and body entirely pale brownish yellow except for very dark flagellar segments, black eyes, small black ocellar tubercle and brown distal tarsal segments. Fore wings (fig. 7), hyaline, veins pale except for dark brown $m + cu_1$, and cu_1 before areola postica; hind margin of pterostigma with narrow brown band. Hind wing (fig. 8).



Figs 7-13. *Taeniosigma nigricornis* sp. n. 7. ♀, forewing. 8. ♀, hindwing. 9. ♀, lacinia. 10. ♀, subgenital plate. 11. ♀, gonapophyses. 12. ♂, epiproct. 13. ♂, phallosome.

Morphology. Length of body: 5.0 mm. Length of flagellar segments: f_1 : 1.64 mm; f_2 : 1.20 mm. Eyes small. IO/D : 2.1; PO : 0.75. Ocelli small on a small tubercle. Lacinia (fig. 9). Measurements of hind leg: F : 1.48 mm; T : 2.2 mm; t_1 : 0.68 mm; t_2 : 0.20 mm; rt : 3.4 : 1; ct : 28, 0.

Fore wing length: 6.0 mm; fore wing width: 2.0 mm. Vein r_1 diverging very slightly from costal margin of wing where it forms the hind border of the pterostigma; $rs + m$ fusion fairly long; cu_{1a} fused with m for a fairly long length, that is, apex of areola postica broad. Free section of m between $rs + m$ confluence and areola postica 1.3 times $rs + m$. Veins (including cu_2) and margin setose except for margin from nodulus to wing base. Setae on cu_2 up to 0.090 mm. Hind wing length: 4.0 mm; hind wing width: 1.2 mm. Epiproct simple. Subgenital plate (fig. 10) setose. Gonapophyses (fig. 11, distorted in preparation).

MALE

Coloration (in alcohol). As in female.

Morphology. Length of body: 4.0 mm. Length of antennal segments: f_1 : 1.38 mm; f_2 : 0.84 mm. Eyes larger than in females. IO/D : 1.0; PO : 0.93. Measurements of hind leg: F : 1.2 mm; T : 2.00 mm; t_1 : 0.64 mm; t_2 : 0.20 mm; rt : 3.2 : 1; ct : 25, 0. Fore wing length: 4.7 mm; fore wing width: 1.6 mm. Venation and setae as in female. Free section of m between $rs + m$ confluence and areola postica 1.5 times $rs + m$. Setae on cu_2 up to 0.098 mm. Hind wing length: 3.3 mm; hind wing width: 0.9 mm. Epiproct (fig. 12) with seven symmetrically arranged setae in a field of papillae. Paraproct with large circular trichobothrial field and papillate area as usual in males of the genus. Phallosome (fig. 13).

Material Examined. NEW GUINEA: 1 ♀ (holotype), 1 ♂ (allotype), Wau, September 5, 1970 (C. N. Smithers and I. W. B. Thornton); 1 ♀, Kassem Pass, September 1, 1970 (C. N. Smithers and I. W. B. Thornton); 1 ♀, Wau, October 5, 1962 (J. Sedlacek).

Holotype, allotype and paratype in the Australian Museum, Sydney; paratype in Bishop Museum, Hawaii.

Discussion. This is the only species of *Tacniostigma* with an entirely pale brownish yellow body, without any darkening of the antedorsum and lateral lobes of the thorax; the antennae, however, have very dark, almost black, flagellar segments which contrast strongly with the body colour.

Tacniostigma sibilensis sp. n.

Figs 14–18

FEMALE

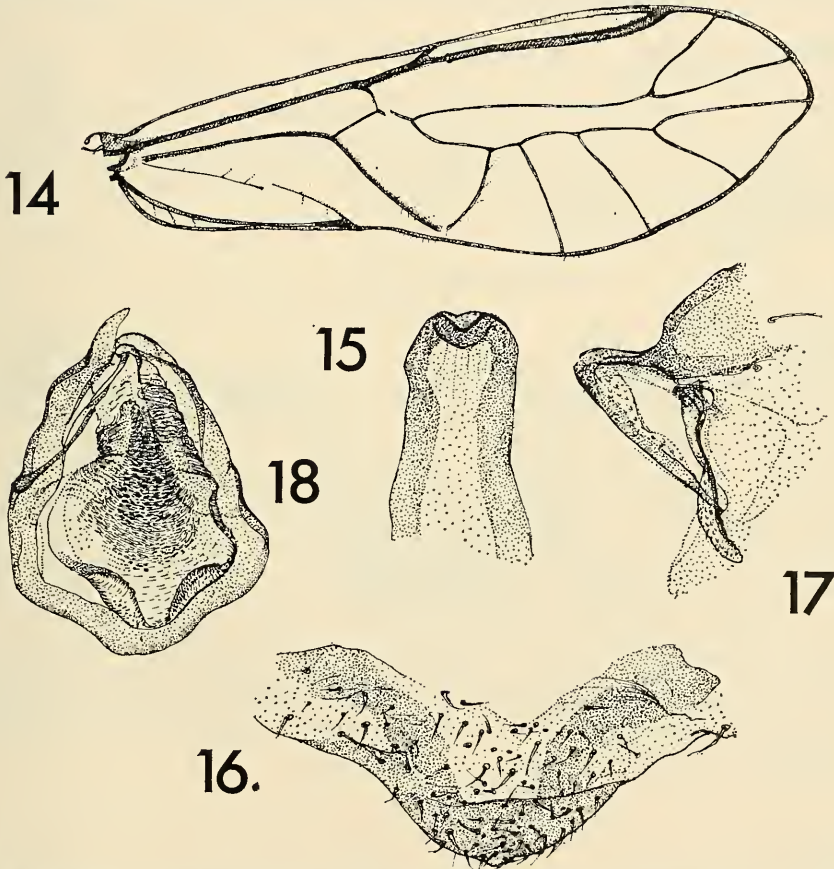
Coloration (in alcohol). Head dark brown with a paler spot on each epicranial plate and pale between ocellar tubercle and antenna base. Labrum and mouthparts pale brown. Antenna with scape, pedicel and first flagellar segment very dark, almost black; remainder of flagellum dark brown. Eyes black. Ocellar tubercle black. Maxillary palp pale brown. Antedorsum and lateral lobes of mesothorax dark brown with at most a trace of a median pale line on antedorsum. Femora pale with dark distal fifth; tibiae pale, dark at each end; tarsi brown. Wings hyaline. In fore wings (fig. 14) pterostigma with a narrow dark brown band along r_1 . Veins brown.

Morphology. Length of body: 5.0 mm. Median epicranial suture very distinct. Other features as in *T. baiyerensis*. Eyes moderately large. IO/D : 2.0; PO : 0.83. Ocelli of almost equal size. Lacinia (fig. 15). Measurements of hind leg: F : 1.2 mm; T : 1.92 mm; t_1 : 0.60 mm; t_2 : 0.20 mm;

rt : 3 : 1; ct : 21, 1. Fore wing length: 5.2 mm; fore wing width: 1.8 mm. Veins $m + cu$ and cu_1 beyond separation from m only a little thickened. Free section of m between $m + cu_{1a}$ and $rs + m$ about 1.8 times as long as $rs + m$. Areola postica with fairly narrow apex. Radial fork opposite origin of m_2 . Setae on cu_2 up to 0.140 mm. Paraproct with double cone on hind margin very well developed with a small adjacent seta; ventral to the cone is a large marginal seta. Trichobothrial field large, rosette bases of setae small and not touching each other. Subgenital plate (fig. 16). Gonapophyses (fig. 17).

MALE

Coloration (in alcohol). As in female but dark posterior margin to pterostigma less conspicuous.



Figs 14–18. *Taeniosigma sibilensis* sp. n. 14. ♀, forewing. 15. ♀, lacinia. 16. ♀, subgenital plate. 17. ♀, gonapophyses. 18. ♂, phallosome.

Morphology. Length of body: 4.0 mm. Lengths of flagellar segments: f_1 : 1.28 mm; f_2 : 1.00 mm. Eyes large than in female. IO/D : 1.5; PO : 1.0. First flagellar segment slightly curved near base. Measurements of hind leg: F : 1.28 mm; T : 2.08 mm; t_1 : 0.64 mm; t_2 : 0.20 mm; rt : 3.2 : 1; ct : 25, 0. Fore wing length: 5.7 mm; fore wing width: 1.9 mm. Free

section of m between $rs + m$ and areola postica 1.6 times as long as $rs + m$. Apex of areola postica a little broader than in female. Setae on cu_2 up to 0.084 mm. Hind wing length: 3.8 mm; hind wing width: 1.2 mm. Epiproct with semicircular hind margin; sparsely setose with a large field of small papillae. Paraproct with large trichobothrial field. Marginal double cone well developed, large papillar area in distal half of paraproct. Hypandrium simple. Phallosome (fig. 18).

Material Examined. WEST IRIAN: 1 ♀ (holotype), Star Mountains, Sibil Valley, 1,245 m; October 18 to November 8, 1961 (S. and L. Quate); 1 ♀, 1 ♂, Wisselmeren, 1,700 m, Waghete, Tigi Lake, August 17, 1955 (J. L. Gressitt). NEW GUINEA: 1 ♂ (allotype), Daulo Pass, 2,400 m, June 15, 1955 (J. L. Gressitt); 1 ♂ Kubor Range, 2,950 m, May 23, 1961 (J. L. Gressitt); 1 ♂, Mount Wilhelm, 3,000 m, July 4, 1955 (J. L. Gressitt).

Holotype, allotype and paratypes in Bishop Museum.

Discussion. *Taeniostigma sibilensis* differs from *T. phaeostigma*, *T. baiyerensis*, *T. nigricornis* and *T. perkinsi* Banks in having a dark head with a paler area on each epicranial plate. *Taeniostigma iriana* Smithers and Thornton has a dark epicranium with a pale frons and a pale area behind the dark ocellar tubercle.

Taeniostigma phaeostigma sp. n.

Figs 19-22

FEMALE

Coloration (in alcohol). Very similar to *T. baiyerensis*. Pterostigma much more extensively marked with brown (fig. 19) but veins r and r_1 paler than $m + cu_1$.

Morphology. Length of body: 4.6 mm. General features as in *T. baiyerensis*. Lengths of flagellar segments: f_1 : 2.0 mm; f_2 : 1.32 mm. Antennae stout and strongly setose. Eyes hemispherical. IO/D : 1.8; PO : 0.73. Lacinia (fig. 20). Measurements of hind leg: F : 1.48 mm; T : 2.40 mm; t_1 : 0.68 mm; t_2 : 0.18 mm; rt : 3.8 : 1; ct : 26, 0. Fore wing length: 6.4 mm; fore wing width: 2.0 mm. Fore wing with $m + cu_1$ thickened. Free section of m between $m + cu_{1a}$ and $rs + m$ about as long as $rs + m$ or a little longer. Setae on cu_2 up to 0.112 mm. Hind wing length: 4.0 mm; hind wing width: 1.2 mm. Epiproct simple, rounded behind, setose. Paraproct as in *T. baiyerensis*. Subgenital plate (fig. 21). Gonapophyses (fig. 22).

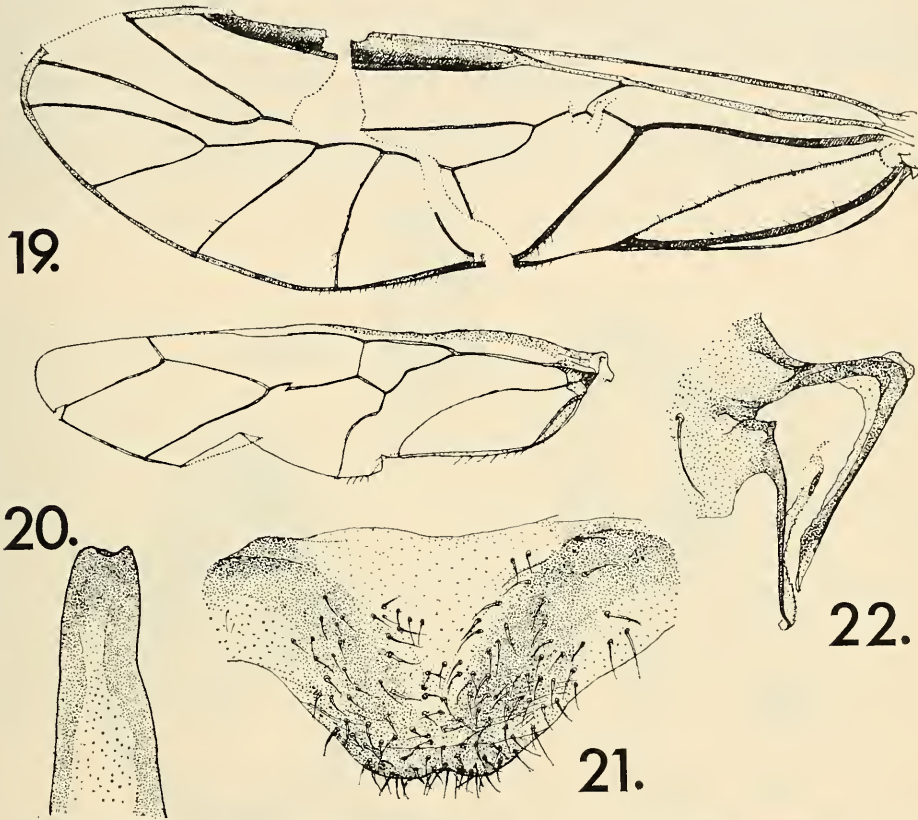
MALE

Unknown.

Material Examined. WEST IRIAN: 1 ♀ (holotype), Hollandia area, W. Sentani, Cyclops Mountain, 150-250 m, June 18, 1959 (J. L. Gressitt); 1 ♀, same locality, June 22, 1959 (T. C. Maa); 1 ♀, Waris, S. of Hollandia, 450-500 m, August 24 to 31, 1959 (T. C. Maa); 5 ♀, Bodem, 11 km S.E. of Oeberfaren, 100 m, July 7 to 17, 1959 (T. C. Maa). NEW GUINEA: 1 ♀, Finisterre Range, Saidor, Gabumi Village, June 24 to 30, 1958 (W. W. Brandt).

Holotype and paratypes in Bishop Museum.

Discussion. *Taeniosigma phaeostigma* differs from other New Guinea species of the genus, except *T. baiyerensis*, in having the dorsum of the pterothorax sharply demarcated into a dark brown anterior part and a paler posterior part, with the top of the head pale. From *T. baiyerensis* it differs in having a well developed dark band in the pterostigma along r_1 .



Figs 19-22. *Taeniosigma phaeostigma* sp. n. 19. ♀, fore and hindwing. 20. ♀, lacinia. 21. ♀, subgenital plate. 22. ♀, gonapophyses.

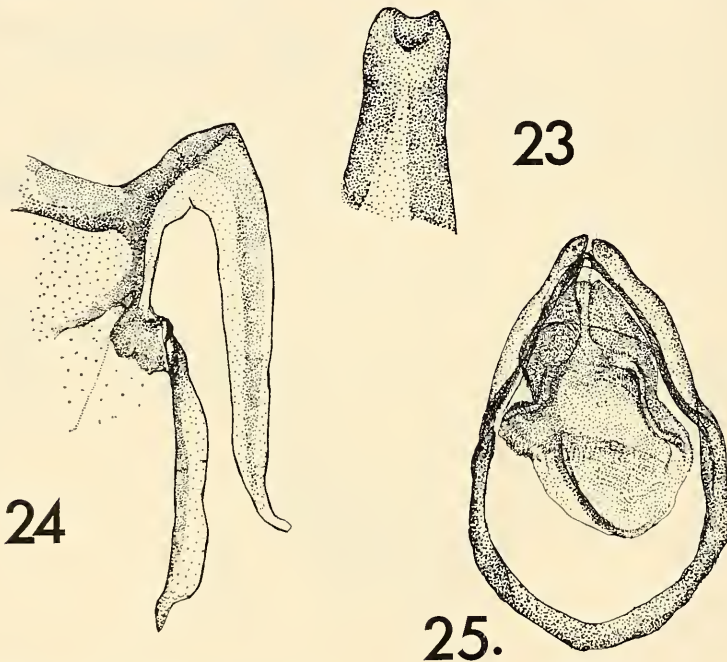
Taeniosigma iriana sp. n.

Figs 23-25

FEMALE

Coloration (in alcohol). Head dark brown, with a paler frons and a paler area behind the dark ocellar tubercle. Genae posteriorly pale. Labrum pale brown. Antennae very dark brown. Eyes black. Maxillary palps pale with distal half of fourth segment brown. Antedorsum and lateral lobes of mesothorax dark brown, sutures and areas adjacent to them very pale; scutellum pale. Femora pale, a little darker towards distal end. Tibiae pale brown, tarsi brown. Fore and hind wings hyaline; veins pale; r_1 well curved and bordered with brown. Abdomen pale except for the brown epiproct and paraprocts.

Morphology. Length of body: 4.0 mm. Median epicranial suture distinct. Lengths of flagellar segments: f_1 : 1.36 mm; f_2 : 1.00 mm. Eyes small. IO/D : 2.1; PO : 0.63. Lacinia (fig. 23). Measurements of hind leg: F : 1.28 mm; T : 1.96 mm; t_1 : 0.64 mm; t_2 : 0.2 mm; rt : 3.2 : 1; ct : 24, 0. Fore wing length: 5.4 mm; fore wing width: 2.0 mm. Fore wings broad, apex broadly rounded. Vein r_1 (hind margin of pterostigma) diverging slightly from costal margin before distinctly curving to meet costa; the pterostigma is, therefore, very slightly broadened in distal half. Free section of m between $rs + m$ confluence and $m + cu_{1a}$ confluence 1.5 times as long as $rs + m$. Areola postica tall, $m + cu_{1a}$ fairly short. All veins and margin (except hind margin from nodulus to wing base) setose. Setae on cu_2 up to 0.14 mm. Hind wing length: 3.5 mm; hind wing width: 1.2 mm. Veins setose except for $m + r$, r and rs basad of fusion with m . Wing margin setose except for anterior



Figs 23–25. *Taeniosigma iriana* sp. n. 23. ♀, lacinia. 24. ♀, gonapophyses. 25. ♂, phallosome.

margin basad of r_1 . Epiproct semicircular, setose in distal third. Paraproct rounded, strongly setose posteriorly with a large round trichobothrial field. Posterior margin with two large setae between which lies a double cone and one small adjacent seta. Subgenital plate sparsely setose, the setae fine, hind margin almost straight. Gonapophyses (fig. 24).

MALE

Coloration (in alcohol). As in female but with only two dark spots (trichobothrial fields) at the end of the abdomen.

Morphology. Length of body: 3.1 mm. Smaller than female. Eyes large, much larger than in female. IO/D : 0.66; PO : 1.0. Measurements of hind leg: F : 1.08 mm; T : 1.44 mm; t_1 : 0.48 mm; t_2 : 0.18 mm;

rt : 2.7 : 1; ct : 14, 0. Fore wing length: 4.9 mm; fore wing width: 1.8 mm. Fore wings similar to those of female. Free section of *m* between *rs* + *m* confluence and *m* + *cu*_{1a} confluence 1.7 times as long as *rs* + *m*. Setae as in female. Hind wing length: 3.2 mm; hind wing width: 1.0 mm. Epiproct simple, sparsely setose. Hypandrium simple, setose except for a small median area near hind margin. Phallosome (fig. 25).

Material Examined. WEST IRIAN: 4 ♀ (including holotype), 2 ♂ (including allotype), Waris, S. of Hollandia, 450–500 m, July 27 to 30, 1959 (T. C. Maa); 2 ♀, 1 ♂, Vogelkop, Kebar Valley, W. of Manokwari, 550 m, May 4 to 31, 1962 (S. and L. Quate).

Holotype, allotype and paratype in Bishop Museum.

Discussion. *Taeniostigma iriana* differs from *T. baiyerensis*, *T. phaeostigma*, *T. perkinsi* and *T. nigricornis* in having a dark epicranium. *T. sibilensis* has a pale central area on each epicranial plate.

Taeniostigma perkinsi Banks 1918

Material Examined. PAPUA: 1 ♂, Doa Estate, 80 km from Port Moresby, July 22, 1962; 1 ♂, same locality, September 9, 1962 (R. Straatman). (BPBM). NEW GUINEA: 1 ♀, Mount Missim, 7°15'S, 146°48'E, 1,600 m, May 27, 1966 (J. L. Gressitt) (BPBM); 2 ♀, Gauka, S. of Minj, August 27, 1970 (C. N. Smithers and I. W. B. Thornton) (AM); 1 ♀, Kamang, near Minj, 1,840 m, May 21, 1966 (J. L. Gressitt) (BPBM); 1 ♂, 2 ♀, Nondugl, July 8-9, 1955 (J. L. Gressitt) (BPBM); 1 ♂, ex *Araucaria cunninghamii*, Wau, September 5, 1970; 1 ♀, McAdam Park, Wau, September 5, 1970 (C. N. Smithers and I. W. B. Thornton) (AM); 1 ♀, Wau, May 20, 1965; 1 ♀, Wau, October 13, 1965; 1 ♀, Wau, September 10?; 1 ♀, Wau, no date (J. and M. Sedlacek) (BPBM); 1 ♀, Sinofi, 1,590 m, 30 km S. of Kainantu, September 30, 1959 (T. C. Maa) (BPBM).

This species has previously been recorded from north-eastern Australia (Smithers, 1974a).

Stenopsocus Hagen 1866

(Type species: *Psocus immaculatus* Stephens 1836)

Stenopsocus albipileus Smithers (1974)

Material Examined. NEW GUINEA: 1 ♂, Laiagam Village, near Tambul, August 29, 1970; 1 ♂, Paigona, Tomba, August 30, 1970; 1 ♀, Kundiawa, August 24, 1970; 1 ♀, Jimi Highway, Sepik Wangi Divide, 2,200 m, August 30, 1970 (C. N. Smithers and I. W. B. Thornton) (AM); 1 ♂, Upper Chimbu Valley, 2,200 m, July 5, 1955; 1 ♀, Nondugl, 1,600 m, July 9, 1955; 1 ♀, Ahl Valley, Nondugl, 1,750 m, July 8, 1955; 1 ♀, Mount Missim, 600 m, April 28, 1966; 2 ♀, Mount Otto, 2,200 m, June 21-23, 1955; 2 ♀, Nimbu, Upper Chimbu Valley, July 5, 1955 (L. G. Gressitt) (BPBM). PAPUA: 1 ♂, Bisianumu, 150 m, near Port Moresby, June 19, 1957 (D. E. Hardy) (BPBM). WEST IRIAN: 1 ♂, Central Mountains, Archbold Lake, 760 m, November 26 to December 3, 1961 (L. W. Quate) (BPBM).

This species has previously been recorded from north-eastern Australia (Smithers, 1974b).

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